REMARKS

Claims 1-33 were pending and stand rejected under 35 USC §103(a). Claims 1-4, 6, 7, 9, 10, 18-21, 24-26, and 28-33 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Mizoguchi et al. (US 6,374,040 B2) in view of Tsujii et al. (US 7,027,717 B1). Claims 5, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over. Mizoguchi et al. (US 6,374,040 82) in view of Tsujii et al. (US 7,027,717 81) as applied to claim 1 above, and further in view of Yamakawa et al. (4,896,309). Claims 8 and 27 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Mizoguchi et al. (US 6,374,040 B2) in view of Tsujii et al. (US 7,027,717 Bl) as applied to claim 1 above, and further in view of Xue et al. (US 6,334,026 Bl). Claims 11, 14, 16, and 17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Mizoguchi et al. (US 6,374,040 B2) in view of Tsujii et al. (US 7,027,717 Bl) as applied to claims 1, 18, and 29 above, and further in view of Bhadkamkar et al. (5,893,062) and Weaver et al. (6,112,226). Claims 12 and 13 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Mizoguchi et al. (US 6,374,040 B2) in view of Tsujii et al. (US 7,027,717 B1), Bhadkamkar et al. (5,893,062), and Weaver et al. (6,112,226) as applied to claim 11 above, and further in view of Yamakawa et al. (4,896,309).

Applicants' invention relates to formatting and storing audio and video information in a CD-DA format and reproducing the information on a compact portable device having interfaces for audio and video. In this embodiment the audio and video information is formatted for right and left stereo tracks of the CD-DA with the bit map video information being stored on one audio channel, with both PCM/CD modulated audio signals being stored on the respective stereo channels of the CD. The two channels are interleaved and recorded to the CD-DA in a manner similar to CD-DAs that have only audio information recorded thereon. In the preferred embodiment, a CD-DA disc of generally smaller diameter is utilized with the portable reproducing device such that a device of smaller size is realized. The portable reproducing device includes a housing with a display, one or more outputs for communicating audio information to an external

Atty. Dkt. No. 1-004 AMENDMENT

Appl. No. 10/623,340
REPLY TO OFFICIAL ACTION dated July 6, 2007

device, such as a speaker, a pivoting cover providing access to a loaded CD-DA, and means control the operation of the portable reproducing device. In operation, the portable reproducing device is operable to read the time-synchronized interleaved audio and video information recorded on the CD-DA, and process a signal representative thereof in an information processor. The processor extracts the audio and video information from the interleaved stereo audio channels and provides an audio signal and video signal to respective audio and video interfaces for reproduction by a speaker and a display. The user may operate the portable device by pivoting open the media cover portion, inserting a CD-DA formatted as described above, closing the media cover portion, and initiating one or more of the control means on the device. The invention may be implemented with less costly components and electronics, and provides an alternative to CD-I or CD-I/CD-DA formatted discs and reproducing devices where sector-interleaving is employed along with sub-headers for multiple data types.

Applicants' *frame start and end portions* for recording VIDEO INFORMATION ON A FIRST CHANNEL with *a reduced sample-per-frame number* while recording AUDIO INFORMATION SEPARATELY ON A SECOND CHANNEL, with resulting video and audio information being *time-synchronized in reproduction* is Not Obvious in view of the cited art

With regard to Claim 11, the Examiner's statements are respectfully traversed in that Bhadkamkar et al. and Weaver at al. in combination with the other references discussed below, fail to teach recording as claimed by combining a number of video pixels per sample, formatting the frame start portion and the frame end portion for recording the video information on a first channel and the audio information on a second channel, and reproducing the video and audio information with the video and audio information time-synchronized thereby generating a reduced sample-per-frame number as described and claimed by Applicants. Bhadkamkar et al. concern means of scan conversion for playback as opposed to efficient recording as claimed. Applicants' invention as claimed is neither shown nor obvious to combine the number of video pixels

per sample to reduce the size of the video and audio combined recordings. Applicants'
Claim 11 particularly recites formatting the frame start portion and the frame end portion
for recording the video information on a first channel and the audio information on a
second channel, the video and audio information being recorded as a modulated signal,
and thus acquiring and reproducing the video and audio information such that the first
and second channels are respective left and right audio channels associated with the
compact disc, and the video and audio information are time-synchronized, which is not
found in the prior art.

Further Weaver et al. fail to teach allocating a portion of available samples,
determined from a comparison between the sampled audio throughput and the reduced
sample-per-frame number, as a frame start portion and a frame end portion and
formatting the frame start portion and the frame end portion. Weaver et al. relates to
concurrently encoding and tagging digital information for allowing non-sequential access
during playback. The Weaver et al. system takes a video stream and tags every frame
with markers for archival purposes. Tokenized descriptions are stored in a data base.
The user can select what video is desired by searching and requesting through the data
base. The video(s) requested are packetized and sent to the user via any data
communications means in any format requested. The Mizoguchi et al. (6,374,040 B2)
Portable DVD player discloses a portable DVD player having a MPEG and sub picture
decoder which allows the picture to be scaled to the best fit of the screen. Tsujii et al.
(US 7,027,717 Bl) at Col. 1, lines 21-26; Fig. 9 shows compressed serialized data streams
with the audio and video NOT multi tracks for the same file 6 of Fig. 1 (which relates to
a Quick Time decoder). In Col. 7, lines 63-65 and Col. 14, lines 45-50 audio and video
data is interleaved for decompression and error detection in Quick Time. Consider claim
11- Mizoguchi and Tsujii teach that compression with embedded information recorded at
the disc level followed by intensive decompression and formatting at the player level is
the method described in the cited art, which is evident by the use of described sub picture
data required with the devices. The sub picture data is required to match the pixel and
aspect ratio of the portable device's screen.   Applicants', on the other hand, achieve a further
advantageous resulting benefit by way of Applicants' claimed architecture using its frame

Atty. Dkt. No. 1-004 AMENDMENT

Appl. No. 10/623,340
REPLY TO OFFICIAL ACTION dated July 6, 2007

rate, pixel count, audio stream formatted at the disc level to eliminate the need for decompression, buffering, conditioning phase shifting and synchronization. The elimination of these steps at the player level is done at the video editing source. The materials processed to match the CD player's capabilities.

FORMATTING THE FRAME START AND END PORTIONS FOR RECORDING VIDEO AND AUDIO INFORMATION ON RESPECTIVE *LEFT AND RIGHT AUDIO CHANNELS* ASSOCIATED WITH THE *COMPACT DISC MODULATION FOR THE VIDEO AND AUDIO* INFORMATION CLAIMED IN ACQUIRING AND REPRODUCING TIME-SYNCHRONIZED VIDEO AND AUDIO IS NOT OBVIOUS IN VIEW OF THE CITED ART

In Figure 4 Mizoguchi and Tsujii there is apparent confusion as between channels and tracks. In mpeg, quick time, etc the A/V is compressed and encoded into a single Track or stream of sequential data. These streams are decoded and decompressed into a video channel and two audio channels. It is NOT possible to predict where a particular piece of datum will wind up during this cited prior art process. It is up to the decompression and processors in the player to reconstruct the video and audio images. This process requires a sizable memory to buffer the images so when they play and appear to be in real time. Otherwise the image would stop and stop in fits as the processor extracts and reconstructs the image. The worst case is rapidly changing images that require the entire screen to be refreshed with new images. The best case is still images, the decoders can simply tell the display processor to hold the image.

In contradistinction, Applicants' particularly define formatting the frame start portion and the frame end portion for recording the video information on a first channel and the audio information on a second channel, the video and audio information being recorded as a modulated signal, and thus acquiring and reproducing the video and audio information such that the first and second channels are respective left and right audio channels associated with the compact disc, and the video and audio information are time-synchronized.

Atty. Dkt. No. 1-004 **AMENDMENT**

Appl. No. 10/623,340
REPLY TO OFFICIAL ACTION dated July 6, 2007

Independent Claims 1, 18, and 29 which recite the information processor processing time-synchronized modulated signal from the data acquisition sub-assembly for the audio signal and video signal derived with first and second channels (each correspond to one of left and right audio channels associated with the compact disc), with the video signal having one or more frame markers to allow for video reproduction from the modulated signal as amended to define the video interface for acquiring video information from a first channel of the compact disc, the video information having a video frame rate, with video frames formatted at frame start and frame end portions. As described and claimed, the audio interface acquires audio information from a second channel of the compact disc, the video and audio information being recorded as a modulated signal, said audio information having a sampled audio throughput for a single frame of video combined as a number of video pixels per sample in a reduced sample-per-frame number. The claimed light emitting diode data acquisition sub-assembly is operable with the video interface and audio interface from the modulated signal information where the first and second channels each correspond to one of left and right audio channels associated with the compact disc for reading information from the compact disc. The information processor is coupled to the video interface, the audio interface, and the light emitting diode data acquisition sub-assembly reproducing the video and audio information from the modulated signal information from the left and right audio channels, the video and audio information being acquired according to the sampled audio throughput with the number of video pixels per sample according to the reduced sample-per-frame number.

Xue (6,334,026) On-screen display format reduces memory bandwidth for time constrained on-screen display systems, relates to compression means which insert on screen text i.e., letters and numbers, as data into gaps in the audio of an audio/video stream. Xue is a means for closed captioning and adding the CC to an audio video signal. Xue merely teaches how to extract text information from dead bandwidth in the audio channel for display with live video images. The Xue scheme assumes that there is unused bandwidth in the audio channel, which is not the case for Applicants' claimed inventions. Hashimoto (2002/0024893 A1) DVD Auto-changer Capable of Setting all-

Atty. Dkt. No. 1-004 AMENDMENT

Appl. No. 10/623,340
REPLY TO OFFICIAL ACTION dated July 6, 2007

repeat mode, relates to a multi Disk changer player providing continuously play for a stack of DVDs. Yamakawa (4,896,309) optical disc play with phase shift dependent on rotation direction, discloses a player that reads both sides of an optical disc with a special head that is focused at the data region of side a and side b; side b is read when the disc is spun backwards which only works if the disc has no reflective coatings layer. Yamakawa teaches that a disc with no reflective materials where two (2) recorded layers could be read from one side without flipping the disc. The top side is read by reversing the disc revolution. Both CD R and DVD require a reflective layer. By reversing the revolution direction from normal cd DVD a level of security is achieved even over Yamakawa's scheme.

If the Examiner would like to discuss Applicants' invention prior to issuing a further action, the Examiner should feel free to contact the undersigned attorney. In view of the foregoing, Applicants have placed the case in condition for reconsideration and respectfully requests allowance of pending claims 1-33.

Respectfully submitted,

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